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ON MAIL SURVEY RESPONSE BEHAVIOR**

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## **ABSTRACT**

This study experimentally investigated the influence of topic involvement on mail survey response rate and speed. The results show that response rates were higher for topics that are generally considered as high involvement than for topics that are generally considered as low involvement. Moreover, we observed an interesting interaction effect. On the one hand, a positive and significant relationship existed between topic involvement and response rate for topics that on average are viewed as high involvement, leading to a non-response bias. On the other hand, no significant relationship was found between topic involvement and response rate for topics that on average are viewed as low involvement. Finally, we were not able to observe a relationship between topic involvement and response speed for topics that are, on average, either high or low involvement.

## INTRODUCTION

Mail surveys are generally applied because of their low cost, geographic flexibility, and time convenience (Kanuk & Berenson 1975). Nevertheless, they are confronted with a diminishing willingness of respondents to participate, leading to an increase in non-response bias. Much of past research aimed at finding ways to improve response rates was stimulus-response driven, neglecting the effects of individual difference and situational variables. Examples of techniques that are stimulus-response driven include the use of monetary and non-monetary incentives (e.g., Kalafatis & Madden 1995), personalization of the correspondence (e.g., Hennessey 1987), physical appearance of the cover letter and questionnaire (e.g., Buttle & Thomas 1997), pre-notification (e.g., Taylor & Lynn 1998), and follow-up (e.g., Hochstim & Athanasopoulos 1970).

In contrast to stimulus-driven factors, this study focuses at the effect of an important individual difference variable on response behavior, being the recipient's involvement with the topic investigated. While previous research has been conducted on this topic (e.g., McKee 1992, Martin 1994), it is limited in the measures of topic involvement as well as response behaviors. Some studies only probed opinions and intentions, rather than actual response behavior (e.g., Walker Research 1984). In others, researchers simply assumed topic involvement to be varied rather than measured (e.g., Martin 1994). In still others, it was measured by single-item or surrogate measures (e.g., Pearl & Fairley 1985). We overcome these shortcomings by measuring actual response behavior, by not relying on self-reported intentions of recipients, and by reliably assessing topic involvement for all recipients.

## THEORETICAL BACKGROUND AND HYPOTHESES

The Elaboration Likelihood Model (ELM) of persuasion (Petty & Cacioppo 1986) presents an appealing theoretical perspective on information processing with respect to mail surveys involving high versus low involvement topics. MacInnis & Jaworski (1989) as well as Batra & Ray (1986) attributed high elaboration levels to a triple pre-condition: motivation, ability, and opportunity. From the perspective of our study, we are interested in the motivation concept, meaning the level of personal importance or involvement, the need for cognition, or personal responsibility. More specifically, many authors have noted a strong relationship

between involvement and information processing. Under conditions of high elaboration, potential respondents will attend carefully to a mail survey, analyze the content of the mail survey, and finally come to a conclusion whether or not to respond. Under conditions of low elaboration, the processing of a mail survey will mainly be based on peripheral cues. Examples of such clues are source credibility (e.g., Rhine & Severance 1970), sympathy with the source (e.g., Petty et al. 1983), and number of arguments used (e.g., Petty & Cacioppo 1984).

Krugman (1968) defined involvement as the number of personal links per minute between the person and the observed object or message. Zaichkowsky (1985) later formulated involvement as a person's perceived relevance of the object, based upon inherent needs, values, and interests, and developed a 20 item inventor (called Personal Involvement Inventory, PII) to measure the construct. More recently, Mittal (1995) defined involvement as the perceived importance of the stimulus – be that stimulus the topic itself or the purchase-decision task, and provided a five-item measure of the construct, excerpted from the 20 item PII. The remaining 15 items were excluded in the belief that they contaminate the construct of involvement because they involve relevance/essentialness, hedonic value, and attitude. This was also the case with measures developed by Laurent & Kapferer (1985), drawing a four-faceted consumer involvement profile, and by Jain & Srinivasan (1990), assessing the involvement dimensions of importance, pleasure, sign value, risk importance, and risk probability. In the present study, Mittal's (1995) definition and multi-item measures were applied given their sound theoretical basis and psychometric properties (Steenkamp & van Trijp 1991).

A study by IMRA (1967) found that the degree of interest of respondents in the survey topic was the most important single reason for response. However, this statement offers no explanation for the fact that even surveys on topics characterized by a very low involvement generate response. Therefore, we assume that a survey on a topic with an on average low topic involvement, demonstrating a small standard deviation, will generate a certain basal response, which can be understood by looking at factors other than topic involvement. In other words, the factor 'topic involvement' is not assumed to contribute to the response rate in such a situation. For a survey on a topic with an on average high topic involvement, we believe that the response rate will extend beyond this basal response. As a consequence, part of the response rate to high involvement topics will be imputed to topic involvement. The difference in response rates between surveys characterized by low versus high topic involvement is

attributed to the factor topic involvement. These assumptions are in line with past research (Martin 1994; McKee 1992). Consequently, we formulate the following hypotheses:

H<sub>1</sub>: A mail survey's response rate is higher for topics that, on average, are considered as high involvement, than for topics that, on average, are considered as low involvement, *ceteris paribus*.

H<sub>2</sub>: There is a positive relationship between topic involvement and a mail survey's response rate for topics that, on average, are considered as high involvement.

H<sub>3</sub>: There is no relationship between topic involvement and a mail survey's response rate for topics that, on average, are considered as low involvement.

Recent literature (Martin 1994) found no relationship between topic involvement and speed of response. Applied this to high and low involvement topics, we therefore hypothesize that:

H<sub>4</sub>: There is no relationship between topic involvement and a mail survey's response speed for topics that are, on average, high or low involvement.

## **METHOD**

In a first step, we asked two equally composed groups of respectively 245 and 110 undergraduate university students in economics to complete one of two types of questionnaires (18 questionnaires were later removed due to incompleteness). The questionnaire directed at the first group was related to an 'on average low involvement' topic, while the questionnaire targeted at the second group concerned an 'on average high involvement' topic. We chose 'fast food' as the low involvement and 'clothing' as the high involvement topic based on literature (e.g., Engel et al. 1995; Zaichkowsky 1985; Laurent & Kapferer 1985) as well as on the relevance to our group of respondents. The survey was conducted in a class setting and occurred simultaneously for both groups in separate locations, excluding any interaction between groups. Students provided information on topic involvement with fast food respectively clothing based upon Mittal's (1995) items (see Appendix).

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Insert Appendix About Here

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In a second step, a survey dealing with the same topic as the one students were given in the first step was sent to the home address of the same students about four weeks later. In order to stimulate response, the cover letter emphasized the importance of the research, a stamped envelope was provided, and the three-page questionnaire was kept simple including mainly multiple-choice questions. Each student was asked to indicate at which date he or she received the survey and to provide a measure of response speed. This permitted us to collect data on response rate and speed.

In order to relate the data collected in both steps, we asked students in both subsequent questionnaires to provide information on gender, postal code, and type of education followed at high school. While maintaining anonymity, this allowed us to match information collected in the two subsequent surveys. If matching proved to be difficult, handwriting from open-ended questions was compared. Moreover, several steps were taken to ensure that recipients would not mentally link the two subsequent questionnaires. The organizations behind the two surveys were portrayed to be different (university in first step and fictitious market research agency in second step), both surveys did not refer to each other or to the real research purpose, their layout and format differed completely, and only questions on gender, postal code, and type of education were overlapping. No significant media attention was given to either of the topics in the interval between the two steps, thus no time effects were noted.

## RESULTS

Topic involvement was measured on basis of the five items of Mittal (1995). A factor analysis revealed a one-factor structure with all factors scoring at least 0.75. For the overall sample, Cronbach's  $\alpha$  was 0.90 and even for the two sub-samples, the outcomes were very satisfactory: 0.91 for fast food and 0.88 for clothing. The topic involvement construct was calculated as the unweighted average of the five items, reversing item two as it was formulated in an opposite manner. As a manipulation check, a t-test for equality of means showed that indeed the topic involvement with fast food was low (mean 2.54; standard deviation 1.72), whereas that with clothing was significantly higher (mean 5.80; standard deviation 1.14) at a 0.001 level.

The chi-square test ( $\chi^2 = 8.87$ ) indicates that the response rate for clothing (50.5% for 107 observations) was significantly higher than that for fast food (33.5% for 230 observations) at the 0.01 level. Thus, hypothesis 1 can be accepted. In order to measure interaction effects, we conducted an analysis of variance including the variables of topic

involvement, the topic itself (fast food versus clothing), as well as the reaction (response versus non-response).

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Insert Table 1 About Here

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Table 1 shows that differences in involvement between the two topics as well as the interaction effect between topic and reaction are significant. With respect to this interaction effect, we found that the response and non-response group did not differ significantly with respect their average level of topic involvement in the fast food questionnaire (2,65 involvement for the response group and 2,49 for the non-response group). However, in the clothing questionnaire, we found a significant difference as respondents to the questionnaire reported a topic involvement of 6.28, while non-respondents reported a topic involvement of 5.32 ( $p < 0.001$ ). Thus, people who responded to the clothing questionnaire were more involved with clothing than those who did not respond to the clothing questionnaire.

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Insert Figure 1 About Here

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Figure 1 visually depicts these observations. This supports hypotheses 2 and 3. Finally, we observed that neither correlation between topic involvement and speed of response differed significantly from zero at the 0.05 level (correlation of -0.002 for fast food questionnaire versus -0.003 for clothing questionnaire). No significant difference in the average time to respond could be observed between the two questionnaires. Therefore, hypothesis 4 can be accepted.

## **DISCUSSION**

In contrast to low involvement topics, involvement scores reported for high involvement topics were significantly higher for those who responded to the survey. As a result, as opposed to authors stating that surveys lacking extrinsic motivations to respond will be biased towards high involvement responses (e.g., McKee 1992), our findings indicate that such response bias only occurs in case of high involvement topics. According to McKee (1992), researchers can eliminate such response bias by introducing extrinsic motivations to



respond. Petty & Cacioppo's (1986) Elaboration Likelihood Model of persuasion indeed states that recipients who are not involved with a survey's topic are especially sensitive to peripheral cues or extrinsic factors stimulating motivation to respond. Such motivation can be stimulated by for example increasing source credibility (e.g., Rhine & Severance 1970). We assume that for high involvement topics, such peripheral factors will increase response behavior of recipients with a low topic involvement, while this will be less the case for recipients with a high topic involvement, thereby leveling the response rates of both groups and diminishing response bias.

## **LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH**

First, as our study only addressed two topics, future research exploring more topics would allow drawing conclusions for all intermediate levels of involvement regarding response rate and speed. A second limitation concerns our research population consisting only of students. While Peter & Churchill's (1986) meta-analysis of scaling methods revealed no explicit support, students may fill in scales differently from average respondents. Moreover, they may display a response behavior that is different from average respondents. For example, Green (1996) pointed out that better-educated people are more likely to participate in surveys and to do so more quickly. Nevertheless, in our experimental setting, a homogeneous population may be preferable for internal validity and control objectives. As a potential third limitation, neither prior research, nor we explored the "black box", i.e. the survey participants' decision processes. Thus, future research could focus at the relationship between topic involvement and elements of this black box surrounding mail response behavior and the way these elements result in response or non-response.

## **CONCLUSION**

Mail surveys are characterized by a reduced willingness of recipients to participate. This results in a growing problem of non-response bias. This study experimentally investigated the influence of topic involvement on mail survey response rate and speed. We found that the response rate was higher for a topic considered as on average high involvement than for a topic considered as on average low involvement. Moreover, a positive and significant relationship existed between topic involvement and response rate for topics that on

average are viewed as high involvement, while no significant relationship was found between topic involvement and response rate for topics that on average are viewed as low involvement. For on average low involvement topics, mainly factors other than topic involvement account for the response to a questionnaire. Finally, no significant relationship was found between topic involvement and response speed, both for topics that on average are viewed as high or low involvement.

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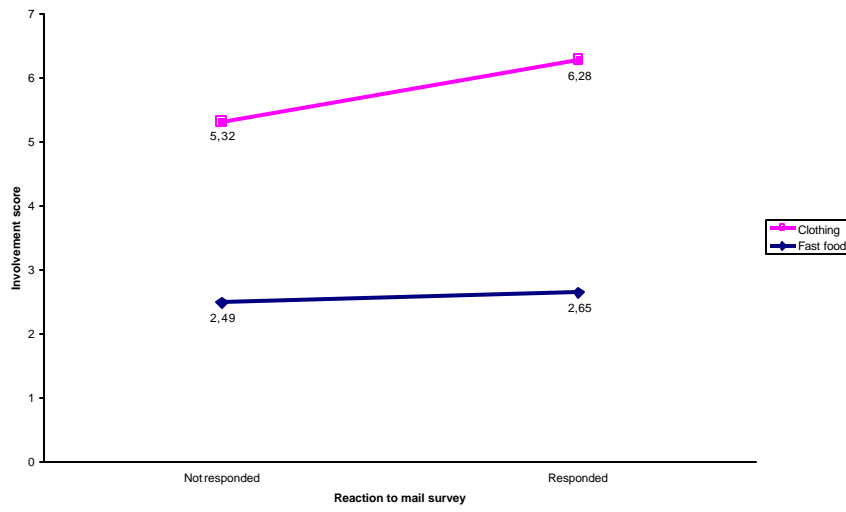
**TABLE 1**

**Main effects and interaction effect with the variables topic involvement, the topic itself (fast food versus clothing), as well as the reaction (response versus non-response)**

Topic involvement	F-Value	D.F.	Significance
Main effects			
Topic	310, 516	1	0,000
Reaction	9,273	1	0,003
Interaction effect			
Topic * Reaction	4,738	1	0,030
Model	113,241	3	0,000

**FIGURE 1**

**Visualization of the interaction effect between topic involvement and reaction**



## APPENDIX

For me fast food/clothing is:

Important	1	2	3	4	5	6	7	Unimportant
Of no concern	1	2	3	4	5	6	7	Of concern to me
Matters to me	1	2	3	4	5	6	7	Does not matter
Significant	1	2	3	4	5	6	7	Insignificant
Means a lot to me	1	2	3	4	5	6	7	Means nothing to me